

**AMENDMENTS TO THE CLAIMS**

1. (Canceled)

2. (Currently Amended) ~~[[The]]~~ A device according to claim 1, for measuring the distribution of selected properties of a material arranged on a conveyor, said device comprising:

an emitter of electromagnetic radiation arranged at one side of said conveyor, said emitter emitting electromagnetic radiation in a multiple of frequencies in a selected frequency range towards said material;

at least a sensor arranged on an opposite side of said conveyor, compared to said emitter, said sensor detecting electromagnetic radiation in said selected frequency range being emitted from said material, said electromagnetic radiation originating from said emitter;

an analyser arranged to receive information regarding said emitted electromagnetic radiation and said detected electromagnetic radiation, said information comprising amplitude and/or phase for each selected frequency, said analyser being arranged calculate the selected property distribution in said material based on the received information;

an image device arranged to send information to said analyser to create a three dimensional contour of the material,

wherein said image device is a memory (15), having stored information regarding the three dimensional contour of the material (16).

3. (Currently Amended) The device according to claim [[1]] 18, wherein said image device comprises at least an imaging sensor (61, 62) is connected to an image processing device (63), said at least one imaging sensor (61, 62) each detects detecting an image of said material, which is processed into a three dimensional contour of said material in said image processing device (63).

4. (Currently Amended) [[The]] A device according to claim 3, for measuring the distribution of selected properties of a material arranged on a conveyor, said device comprising:

an emitter of electromagnetic radiation arranged at one side of said conveyor, said emitter emitting electromagnetic radiation in a multiple of frequencies in a selected frequency range towards said material;

at least a sensor arranged on an opposite side of said conveyor, compared to said emitter, said sensor detecting electromagnetic radiation in said selected frequency range being emitted from said material, said electromagnetic radiation originating from said emitter;

an analyser arranged to receive information regarding said emitted electromagnetic radiation and said detected electromagnetic radiation, said information comprising

amplitude and/or phase for each selected frequency, said analyser being arranged calculate the selected property distribution in said material based on the received information;

an image device arranged to send information to said analyser to create a three dimensional contour of the material, said image device includes at least an imaging sensor connected to an image processing device, said at least one imaging sensor detecting an image of said material, which is processed into a three-dimensional contour of said material in said image processing device,

wherein said at least one imaging sensor (61, 62) detects a picture of the reflectivity in optical wavelengths.

5. (Currently Amended) The device according to claim 4, wherein said at least one sensor of a second type is a video camera (61, 62).

6. (Currently Amended) [[The]] A device according to claim 3, for measuring the distribution of selected properties of a material arranged on a conveyor, said device comprising:

an emitter of electromagnetic radiation arranged at one side of said conveyor, said emitter emitting electromagnetic radiation in a multiple of frequencies in a selected frequency range towards said material;

at least a sensor arranged on an opposite side of said conveyor, compared to said emitter, said sensor detecting electromagnetic radiation in said selected frequency range being emitted from said material, said electromagnetic radiation originating from said emitter;

an analyser arranged to receive information regarding said emitted electromagnetic radiation and said detected electromagnetic radiation, said information comprising amplitude and/or phase for each selected frequency, said analyser being arranged calculate the selected property distribution in said material based on the received information;

an image device arranged to send information to said analyser to create a three dimensional contour of the material, said image device includes at least an imaging sensor connected to an image processing device, said at least one imaging sensor detecting an image of said material, which is processed into a three-dimensional contour of said material in said image processing device,

wherein said imaging sensor detects a picture of the reflectivity and transmissivity and propagation speed of sound waves.

7. (Original) The device according to claim 6, wherein said at least one sensor of a second type is an ultrasound imaging device.

8. (Currently Amended) The device according to any of claims ~~[[1-7]]~~ 2-7 and 18, wherein said analyser (44) is provided with means to interpolate previously measured results, stored in a memory, to obtain the selected property distribution in said material (46).

9. (Currently Amended) The device according to any of claims ~~[[1-7]]~~ 2-7, wherein said analyser (44) is provided with means to calculate the dielectric distribution in said material (46) and convert said dielectric distribution into the selected property distribution in said material (46).

10. (Currently Amended) The device according to claim 9, wherein said means to calculate the dielectric distribution comprises ~~[[ -]]~~ a three dimensional model (20, 30) determining regions within said material (46) where the dielectric function is assumed non-changing, and ~~[[ -]]~~ means to apply said model (20, 30) to said three dimensional contour of the material, whereby a dielectric distribution is obtained.

11. (Previously Presented) The device according to claim 9, wherein said device is provided with means to convert said dielectric distribution into the selected property distribution.

12. (Canceled)

13. (Currently Amended) The method according to claim ~~[[12]]~~ 15, wherein the step of calculating the selected property distribution comprises the step of interpolating previously measured results, stored in a memory.

14. (Canceled)

15. (Currently Amended) ~~[[The]]~~ A method according to claim 14, for measuring selected properties of a material arranged on a conveyor, said method comprising the steps:

emitting electromagnetic radiation in a multiple of frequencies in a selected frequency range towards said material from an emitter arranged at one side of said conveyor;

detecting electromagnetic radiation in said selected frequency range in a sensor arranged on an opposite side of said conveyor, compared to said emitter, said electromagnetic radiation being emitted from said material, said electromagnetic radiation originating from said emitter;

transmitting information, comprising amplitude and/or phase for each selected frequency, regarding said emitted electromagnetic radiation and said detected electromagnetic radiation to an analyser;

transmitting information, comprising information to create a three dimensional contour of the material, to said analyser; and

calculating the selected property distribution in said material by analysing said information in the analyzer,

wherein said step of calculating the selected property distribution comprises the steps of calculating the dielectric distribution in said material using the information regarding emitted and detected electromagnetic radiation, and converting the dielectric distribution into the selected property distribution in said material, and

wherein said step of calculating the dielectric distribution comprises the steps: of ~~[[1]]~~ providing ~~[[a]]~~ three dimensional model ~~(20, 30)~~ determining regions within said material ~~(16)~~ where the dielectric function is assumed non-changing, and ~~[[1]]~~ applying said model ~~(20, 30)~~ to a three dimensional contour obtained by an imaging device ~~(15; 61-63)~~.

16. (Currently Amended) A system comprising a device according to claim ~~[[1]]~~ 18, said instrument evaluates the measurement data based on a method according to claim ~~[[12]]~~ 15 in order to obtain information on the spatial distribution of the said dielectric and magnetic properties of said materials, which information is used to calculate the temperature, density and/or water contents distribution of said materials.

17. (Previously Presented) The device according to claim 10, wherein said device is provided with means to convert said dielectric distribution into the selected property distribution.

18. (New) A device for measuring the distribution of selected properties of a material arranged on a conveyor, said device comprising:

an emitter of electromagnetic radiation arranged at one side of said conveyor, said emitter emitting electromagnetic radiation in a multiple of frequencies in a selected frequency range towards said material;

at least a sensor arranged on an opposite side of said conveyor, compared to said emitter, said sensor detecting electromagnetic radiation in said selected frequency range being emitted from said material, said electromagnetic radiation originating from said emitter;

an analyser arranged to receive information regarding said emitted electromagnetic radiation and said detected electromagnetic radiation, said information comprising amplitude and/or phase for each selected frequency, said analyser being arranged calculate the selected property distribution in said material based on the received information, said analyser being provided with means to calculate the dielectric distribution in said material and convert said dielectric distribution into the selected property distribution in said material; and

an image device arranged to send information to said analyser to create a three dimensional contour of the material,

wherein said means to calculate the dielectric distribution comprises a three dimensional model determining regions within said material where the dielectric function is



assumed non-changing, and means to apply said model to said three dimensional contour of the material, whereby a dielectric distribution is obtained.

19. (New) The device according to claim 18, wherein said device is provided with means to convert said dielectric distribution into the selected property distribution.